

Chapter 23

Summary of Interface Configuration Statements

The following descriptions explain each of the interface configuration statements. The statements are organized alphabetically.

802.3ad

Syntax	802.3ad <i>aex</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> <i>gigether-options</i>], [edit interfaces <i>interface-name</i> <i>fastether-options</i>]
Description	Specify aggregated Ethernet logical interface number.
Options	<i>aex</i> —Aggregated Ethernet logical interface number. Range: 0 through 15
Usage Guidelines	See “Configure Ethernet Link Aggregation” on page 78 or “Configure Aggregated Ethernet Interfaces” on page 247.
Required Privilege Level	<i>interface</i> —To view this statement in the configuration. <i>interface-control</i> —To add this statement to the configuration.

accept-data

Syntax	(accept-data no-accept-data);
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	When configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces, configure whether an interface accepts packets destined for the virtual IP address: <p>accept-data—Allow the interface to accept packets destined for the virtual IP address.</p> <p>no-accept-data—Prohibit the interface from accepting packets destined for the virtual IP address.</p>
Default	If the accept-data statement is not configured, and if the master router owns the virtual IP address, the master router responds to ICMP message requests only.
Usage Guidelines	See “Accept Packets Destined for the Virtual IP Address” on page 157 or page 242.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

access-profile

Syntax	access-profile <i>name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> ppp-options chap]
Description	Mapping between peer names (or “clients”) and the secrets associated with their respective links. This statement is mandatory.
Options	<i>name</i> —Name of the access profile.
Usage Guidelines	See “Configure PPP Challenge Handshake Authentication Protocol” on page 47.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: Getting Started.</i>

accounting

Syntax	<pre> accounting { destination-class-usage; source-class-usage { (input output [input output]); } } </pre>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet6]
Description	Enable IP packet counters on an interface.
Options	The statements are explained separately.
Usage Guidelines	See “Enable Source Class and Destination Class Usage” on page 147.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

accounting-profile

Syntax	accounting-profile <i>name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Enable collection of accounting data for the specified physical or logical interface.
Options	<i>name</i> —Name of the accounting profile.
Usage Guidelines	See “Configure Physical Interface Profiles” on page 55 or “Configure the Logical Interface Profile” on page 104.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

address

Syntax address *address* {
 arp *ip-address* (mac | multicast-mac) *mac-address* <publish>;
 destination *address*;
 eui-64;
 broadcast *address*;
 multipoint-destination *destination-address* dlc *dlci-identifier*;
 multipoint-destination *destination-address* {
 inverse-arp;
 oam-liveness {
 up-count *cells*;
 down-count *cells*;
 }
 oam-period *seconds*;
 shaping {
 vbr peak *rate* sustained *rate* burst *length*;
 queue-length *number*;
 }
 vci *vpi-identifier.vci-identifier*;
 }
 primary;
 preferred;
 vrrp-group *group-number* {
 virtual-address [*addresses*];
 priority *number*;
 (accept-data | no-accept-data);
 advertise-interval *seconds*;
 authentication-type *authentication*;
 authentication-key *key*;
 (preempt | no-preempt);
 track {
 interface *interface-name* priority-cost *cost*;
 }
 }
}

Hierarchy Level [edit interfaces *interface-name* unit *logical-unit-number* family *family*]

Description Configure the interface address.

Options *address*—Address of the interface.

The remaining statements are explained separately.

Usage Guidelines See “Configure the Protocol Family” on page 127.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

advertise-interval

advertise-interval (APS)

Syntax	advertise-interval <i>milliseconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Modify the APS interval at which the protect and working routers send packets to their neighbors to advertise that they are operational. A router considers its neighbor to be operational for a period, called the hold time, that is, by default, three times the advertisement interval.
Options	<i>milliseconds</i> —Interval between advertisement packets. Range: 1 through 65,535 milliseconds Default: 1000 milliseconds
Usage Guidelines	See “Configure APS Timers” on page 91 or page 282.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	hold-time on page 356

advertise-interval (VRRP)

Syntax	advertise-interval <i>seconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	On Fast Ethernet and Gigabit Ethernet interfaces only, configure the interval between VRRP advertisement packets. All routers in the VRRP group must use the same advertisement interval.
Options	<i>seconds</i> —Interval between advertisement packets. Range: 1 through 255 seconds Default: 1 second
Usage Guidelines	See “Configure the Advertisement Interval for the VRRP Master Router” on page 157 or page 241.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

• aggregate

Syntax	aggregate <i>asx</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options]
Description	Specify aggregated SONET/SDH logical interface number.
Options	<i>asx</i> —Aggregated SONET/SDH logical interface number. Range: 0 through 15
Usage Guidelines	See “Configure Aggregated SONET/SDH Interfaces” on page 94 or page 290.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

• aggregated-ether-options

Syntax	aggregated-ether-options { (flow-control no-flow-control); link-speed <i>speed</i> (loopback no-loopback); minimum-links <i>number</i> ; source-address-filter { <i>mac-address</i> ; } (source-filtering no-source-filtering); }
Hierarchy Level	[edit interfaces <i>aex</i>]
Description	Configure aggregated Ethernet-specific interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure Ethernet Physical Interface Properties” on page 77 or page 230.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

aggregated-sonet-options

Syntax	aggregated-sonet-options { link-speed <i>speed</i> ; minimum-links <i>number</i> ; }
Hierarchy Level	[edit interfaces <i>asx</i>]
Description	Configure aggregated SONET-specific interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure Aggregated SONET/SDH Interfaces” on page 94 or page 290.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

allow_any_vci

Syntax	allow_any_vci;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit 0]
Description	Dedicate entire ATM device to ATM cell relay circuit.
Usage Guidelines	See “Configure PPP Challenge Handshake Authentication Protocol” on page 47 or “Configure ATM Interface Encapsulation” on page 184.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

aps

Syntax aps {
 advertise-interval *milliseconds*;
 authentication-key *key*;
 force;
 hold-time *milliseconds*;
 lockout;
 neighbor *address*;
 paired-group *group-name*;
 protect-circuit *group-name*;
 request;
 revert-time *seconds*;
 working-circuit *group-name*;
 }

Hierarchy Level [edit interfaces *interface-name* sonet-options]

Description Configure Automatic Protection Switching (APS) on the router.

For DS-3 channels on a Channelized OC-12 interface, you configure APS on channel 0 only. If you configure APS on channels 1 through 11, it is ignored.

Options The remaining statements are explained separately.

Usage Guidelines See “Configure APS” on page 87 or page 277.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

arp

Syntax	<code>arp ip-address (mac multicast-mac) mac-address <publish>;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i>]
Description	For Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces only, configure ARP table entries, mapping IP addresses to MAC addresses.
Options	<p><i>ip-address</i>—IP address to map to the MAC address. The IP address specified must be part of the subnet defined in the enclosing address statement.</p> <p><i>mac mac-address</i>—MAC address to map to the IP address. Specify the MAC address as six hexadecimal bytes in one of the following formats: <i>nnnn.nnnn.nnnn</i> or <i>nn:nn:nn:nn:nn:nn</i>. For example, 0011.2233.4455 or 00:11:22:33:44:55.</p> <p><i>multicast-mac</i>—Multicast MAC address to map to the IP address. Specify the multicast MAC address as six hexadecimal bytes in one of the following formats: <i>nnnn.nnnn.nnnn</i> or <i>nn:nn:nn:nn:nn:nn</i>. For example, 0011.2233.4455 or 00:11:22:33:44:55.</p> <p><i>publish</i>—(Optional) Have the router reply to ARP requests for the specified IP address. If you omit this option, the router uses the entry to reach the destination but does not reply to ARP requests.</p>
Usage Guidelines	See “Configure Static ARP Table Entries” on page 141 or page 238.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

atm-encapsulation

Syntax	<code>atm-encapsulation (direct PLCP);</code>
Hierarchy	<p>[edit interfaces at-<i>fpc/pic/port</i> e3-options]</p> <p>[edit interfaces at-<i>fpc/pic/port</i> t3-options]</p>
Description	Configure encapsulation for E3/T3 traffic over ATM interfaces.
Default	PLCP is the default value for T3 traffic and for E3 traffic using G.751 framing.
Options	<p><i>direct</i>—Use direct encapsulation. G.832 framing on E3 interfaces requires direct encapsulation.</p> <p><i>PLCP</i>—Use PLCP encapsulation.</p>
Usage Guidelines	See “Configure E3 and T3 Parameters on ATM Interfaces” on page 186.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	encapsulation on page 345

atm-options

Syntax atm-options {
vpi *vpi-identifier* maximum-vcs *maximum-vcs*;
}

Hierarchy [edit interfaces *interface-name*]

Description Configure ATM-specific physical interface properties.

Options The remaining statement is explained separately.

Usage Guidelines See “Configure ATM Physical Interface Properties” on page 60 or page 174.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also multipoint-destination on page 370, shaping on page 385, vci on page 402

authentication-key

authentication-key (APS)

Syntax authentication-key *key*;

Hierarchy Level [edit interfaces *interface-name* sonet-options aps]

Description Configure the APS authentication key (password).

Options *key*—Authentication password. It can be 1 through 8 characters long. Configure the same key for both the working and protect routers.

Usage Guidelines See “Configure Basic APS Support” on page 88 or page 279.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

authentication-key (VRRP)

Syntax	authentication-key <i>key</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	On Fast or Gigabit Ethernet interfaces, configure a VRRP authentication key (password). For the key to work, you also must specify a VRRP authentication scheme by including the authentication-type statement in the vrrp-group statement All routers in the VRRP group must use the same authentication scheme and password.
Options	<i>key</i> —Authentication password. For simple authentication, it can be 1 through 8 characters long. For MD-5 authentication, it can be 1 through 16 characters long. If you include spaces, enclose all characters in quotation marks (" ").
Usage Guidelines	See "Configure VRRP Authentication" on page 156 or page 241.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	authentication-type on page 330

authentication-type

Syntax	authentication-type <i>authentication</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	<p>On Fast or Gigabit Ethernet interfaces only, enable VRRP authentication and specify the authentication scheme for the VRRP group. If you enable authentication, you must specify a password by including the authentication-key statement in the vrrp-group statement.</p> <p>All routers in the VRRP group must use the same authentication scheme and password.</p>
Options	<p><i>authentication</i>—Authentication scheme:</p> <p>none—Disable authentication.</p> <p>simple—Use a simple password. The password is included in the transmitted packet, making this method of authentication relatively insecure.</p> <p>md5—Use the MD5 algorithm to create an encoded checksum of the packet. The encoded checksum is included in the transmitted packet. The receiving router uses the authentication key to verify the packet, discarding it if the digest does not match. This algorithm provides a more secure authentication scheme.</p> <p>Default: none (No authentication is performed.)</p>
Usage Guidelines	See “Configure VRRP Authentication” on page 156 or page 241.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	authentication-key on page 328

bandwidth

Syntax	bandwidth <i>rate</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Configure an informational-only bandwidth value for an interface. This statement is valid for all logical interface types, except multilink and aggregated interfaces.
Options	<p><i>rate</i>—Peak rate, in bps or cps. You can specify a value in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). You can also specify a value in cells per second by entering a decimal number followed by the abbreviation c; values expressed in cells per second are converted to bits per second using the formula 1 cps = 384 bps.</p> <p>Range: Not limited.</p>
Usage Guidelines	See “Configure the Interface Bandwidth” on page 105.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

bert-algorithm

Syntax	bert-algorithm <i>algorithm</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t3-options]
Description	Configure the pattern to send in the bit stream during a BERT test. Applies to T1, E3, T3, and Multichannel DS-3 interfaces and also to the channelized interfaces (DS-3, OC-12, STM-1).
Options	<p><i>algorithm</i>—Pattern to send in the bit stream. There are two categories of test patterns: pseudorandom and repetitive. Both patterns conform to CCITT/ITU O.151, O.152, O.153, and O.161 standards. The algorithm can be one of the following patterns:</p> <p>all-ones-repeating—Pattern is all ones.</p> <p>all-zeros-repeating—Pattern is all zeros.</p> <p>alternating-double-ones-zeros—Pattern is alternating pairs of ones and zeros.</p> <p>alternating-ones-zeros—Pattern is alternating ones and zeros.</p> <p>repeating-1-in-8—1 bit in 8 is set.</p> <p>pseudo-2e10—Pattern is $2^{10} - 1$.</p> <p>pseudo-2e11-o152—Pattern is $2^{11} - 1$, as defined in the O152 standard.</p> <p>pseudo-2e15-o151—Pattern is $2^{15} - 1$, as defined in the O151 standard.</p> <p>pseudo-2e17—Pattern is $2^{17} - 1$.</p> <p>pseudo-2e18—Pattern is $2^{18} - 1$.</p> <p>pseudo-2e20-o151—Pattern is $2^{20} - 1$, as defined in the O151 standard.</p> <p>pseudo-2e20-o153—Pattern is $2^{20} - 1$, as defined in the O153 standard.</p> <p>pseudo-2e21—Pattern is $2^{21} - 1$.</p> <p>pseudo-2e22—Pattern is $2^{22} - 1$.</p> <p>pseudo-2e23-o151—Pattern is $2^9 - 1$, as defined in the O151 standard.</p> <p>pseudo-2e25—Pattern is $2^{25} - 1$.</p> <p>pseudo-2e28—Pattern is $2^{28} - 1$.</p> <p>pseudo-2e29—Pattern is $2^{29} - 1$.</p> <p>pseudo-2e3—Pattern is $2^3 - 1$.</p> <p>pseudo-2e31—Pattern is $2^{31} - 1$.</p> <p>pseudo-2e32—Pattern is $2^{32} - 1$.</p> <p>pseudo-2e4—Pattern is $2^4 - 1$.</p> <p>pseudo-2e5—Pattern is $2^5 - 1$.</p> <p>pseudo-2e6—Pattern is $2^6 - 1$.</p> <p>pseudo-2e7—Pattern is $2^7 - 1$.</p> <p>pseudo-2e9-o153—Pattern is $2^9 - 1$, as defined in the O153 standard.</p> <p>repeating-1-in-4—One bit in four is set to 1; the others are set to 0.</p> <p>repeating-1-in-8—One bit in eight is set to 1; the others are set to 0.</p> <p>repeating-3-in-24—Three bits in twenty-four are set to 1; the others are set to 0.</p> <p>Default: pseudo-2e3</p>
Usage Guidelines	See “Configure BERT Properties” on page 55, “Configure E3 and T3 BERT Properties” on page 76, “Configure E3 BERT Properties” on page 218, “Configure T1 BERT Properties” on page 296, or “Examples: Configure T3 Interfaces” on page 307.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	bert-error-rate on page 332, bert-period on page 332

bert-error-rate

Syntax	bert-error-rate <i>rate</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
Description	Configure the bit error rate to use in a BERT procedure. Applies to E1, E3, T1, or T3 interfaces, and also to the channelized interfaces (DS-3, OC-3, OC-12, STM-1).
Options	<i>rate</i> —Bit error rate. Range: 0 through 7, which corresponds to 10^{-0} (that is, 1 error per bit) to 10^{-7} (that is, 1 error per 10 million bits) Default: 0
Usage Guidelines	See “Configure BERT Properties” on page 55, “Configure E3 and T3 BERT Properties” on page 76, “Configure E3 BERT Properties” on page 218, or “Examples: Configure T3 Interfaces” on page 307.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	bert-algorithm on page 331, bert-period on page 332

bert-period

Syntax	bert-period <i>seconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
Description	Configure the duration of a BERT test. Applies to E1, E3, T1, or T3 interfaces, and also to the channelized interfaces (DS-3, OC-12, STM-1).
Options	<i>seconds</i> —Test duration. Range: 1 through 240 seconds Default: 10 seconds
Usage Guidelines	See “Configure BERT Properties” on page 55, “Configure E3 and T3 BERT Properties” on page 76, “Configure E3 BERT Properties” on page 218, or “Examples: Configure T3 Interfaces” on page 307.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	bert-algorithm on page 331, bert-error-rate on page 332

boot-command

Syntax	boot-command <i>filename</i> ;
Hierarchy Level	[edit interfaces <i>mo-fpc/pic/port</i> multiservice-options]
Description	The boot image for the passive monitoring PIC. It specifies the filename containing the software image for the passive monitoring PIC relative to the directory path /usr/share/pfe.
Options	<i>filename</i> —Name of the boot image. Enclose the name within quotation marks. By default, the name of the boot image for the passive monitoring PIC is monitor.jbf.
Usage Guidelines	See “Configure Multiservice Physical Interface Properties” on page 81.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

broadcast

Syntax	broadcast <i>address</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>]
Description	Set the broadcast address on the network or subnet. On a subnet you cannot specify a host address of 0, nor can you specify a broadcast address.
Default	The default broadcast address has a host portion of all ones.
Options	<i>address</i> —Broadcast address. The address must have a host portion of either all ones or all zeros. You cannot specify the addresses 0.0.0.0 or 255.255.255.255.
Usage Guidelines	See “Configure the Interface Address” on page 129.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

buildout

buildout (T1 interfaces)

Syntax	buildout (0-133 133-266 266-399 399-532 532-655);
Hierarchy Level	[edit interfaces <i>interface-name</i> t1-options]
Description	Set the buildout value (in feet) for a T1 interface.
Default	The default buildout value is 0-133 feet.
Options	0-133 133-266 266-399 399-532 532-655
Usage Guidelines	See “Configure T1 Buildout” on page 66 or page 297.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

buildout (E3 or T3 over ATM interfaces)

Syntax	buildout <i>distance</i> (ft m);
Hierarchy Level	[edit interfaces at- <i>fpc/pic/port</i> e3-options], [edit interfaces at- <i>fpc/pic/port</i> t3-options]
Description	Set the buildout value (in feet or meters) for E3 and T3 traffic over an ATM interface.
Default	The default buildout value is 10 feet.
Options	<i>distance</i> —The buildout value in feet or meters, specified by entering ft or m. Range: 0 through 255 feet for E3 traffic; 0 through 450 feet for T3 traffic Default: 10 feet
Usage Guidelines	See “Configure E3 and T3 Parameters on ATM Interfaces” on page 186.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

bundle

Syntax	<code>bundle ml-fpc/pic/port;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family mltppp]
Description	Associate the multilink interface with the logical interface it is joining.
Options	ml-fpc/pic/port—Name of the multilink interface you are linking.
Usage Guidelines	See “Configure Multilink Interfaces” on page 151 or page 266.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

byte-encoding

Syntax	<code>byte-encoding (nx64 nx56);</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> ds0-options], [edit interfaces <i>interface-name</i> t1-options]
Description	Set the byte encoding on a DS-0 or T1 interface to use 7 bits per byte or 8 bits per byte.
Default	The default byte encoding is to use 8 bits per byte (nx64).
Options	nx56—Use 7 bits per byte. nx64—Use 8 bits per byte.
Usage Guidelines	See “Configure T1 Byte Encoding” on page 66 or page 297.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

bytes

```
Syntax  bytes {
        e1-quiet value;
        f1 value;
        f2 value;
        s0 value;
        s1 value;
        z3 value;
        z4 value;
    }
```

Hierarchy Level [edit interfaces *interface-name* sonet-options]

Description Set values in some SONET header bytes.

On SONET OC-48 interfaces that you configure for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc *slot-number* pic *pic-number*] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.

For DS-3 channels on a Channelized OC-12 interface, the bytes e1-quiet, bytes f1, bytes f2, bytes z3, and bytes z4 options have no effect. The bytes s1 option is supported only for channel 0; it is ignored if configured on channels 1 through 11. The bytes s1 value configured on channel 0 applies to all channels on the interface.

Options e1-quiet *value*—Default idle byte sent on the orderwire SONET overhead bytes. The router does not support the orderwire channel, and hence sends this byte continuously.

Range: 0 through 255

Default: 0x7F

f1 *value*, f2 *value*, z3 *value*, z4 *value*—SONET overhead bytes.

Range: 0 through 255

Default: 0x00

s0 *value*—Set the hardware transmit s0 as an incrementing value rather than 0xCC. This value is used for compatibility between old and new ADMs, should only be used in SDH mode, and is ignored in SONET mode.

Range: 0 through 55

s1 *value*—Synchronization message SONET overhead byte. This byte is normally controlled as a side effect of the system reference clock configuration and the state of the external clock coming from an interface if the system reference clocks have been configured to use an external reference.

Range: 0 through 255

Default: 0xCC

Usage Guidelines See “Configure SONET/SDH Physical Interface Properties” on page 82 or page 272.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also no-concatenate in the *JUNOS Internet Software Configuration Guide: Getting Started*

cbit-parity

Syntax	(cbit-parity no-cbit-parity);
Hierarchy Level	[edit interfaces <i>interface-name</i> t3-options]
Description	For T3 interfaces only, enable or disable C-bit parity mode, which controls the type of framing that is present on the transmitted T3 signal. When C-bit parity mode is enabled, the C-bit positions are used for the FEBE, FEAC, terminal data link, path parity, and mode indicator bits, as defined in ANSI T1.107a-1989. When C-bit parity mode is disabled, the basic T3 framing mode (M13) is used.
Default	C-bit parity mode is enabled.
Usage Guidelines	See “Disable T3 C-Bit Parity Mode” on page 72 or page 304; see also “Configure E3 and T3 Parameters on ATM Interfaces” on page 186.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

cbr

Syntax	cbr <i>rate</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>address</i> shaping]
Description	For ATM encapsulation only, define a constant bit rate bandwidth utilization in the traffic-shaping profile. Each individual VC has its own independent shaping parameters.
Default	Unspecified bit rate (UBR); that is, bandwidth utilization is unlimited.
Options	<i>rate</i> —Peak rate, in bps or cps. You can specify a value in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). You can also specify a value in cells per second by entering a decimal number followed by the abbreviation c; values expressed in cells per second are converted to bits per second using the formula 1 cps = 384 bps. For OC-3 interfaces, the maximum available rate is 100 percent of <i>line-rate</i> , or 135,600,000 bps. For OC-12 interfaces, the maximum available rate is 50 percent of <i>line-rate</i> , or 271,263,396 bps.
Usage Guidelines	See “Define the ATM Traffic-Shaping Profile” on page 116 or page 179.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

chap

Syntax chap {
 access-profile *name*;
 local-name *name*;
 passive;
 }

Hierarchy Level [edit interfaces *interface-name* ppp-options]

Description Allows each side of a link to challenge its peer, using a “secret” known only to the authenticator and that peer. The secret is not sent over the link.

By default, PPP CHAP is disabled. If CHAP is not explicitly enabled, the interface makes no CHAP challenges and denies all incoming CHAP challenges.

Options The statements are explained separately.

Usage Guidelines See “Configure PPP Challenge Handshake Authentication Protocol” on page 47.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

See Also *JUNOS Internet Software Configuration Guide: Getting Started*.

clocking

Syntax clocking (external | internal);

Hierarchy Level [edit interfaces *interface-name*]

Description Clock source for the interface. You specify this statement for interfaces that can use various clock sources. For DS-3 channels on a Channelized OC-12 interface, the clocking statement is supported only for channel 0. It is ignored if you include it in the configuration of other channels. The clock source configured for channel 0 applies to all channels on the Channelized OC-12 interface. The individual DS-3 channels use a gapped 45-MHz clock as the transmit clock.

Options external—The clock source is provided by the DCE.

internal—Use the internal stratum 3 clock as the reference clock.

Default: internal

Usage Guidelines See “Configure the Clock Source” on page 52 or page 285.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

compatibility-mode

Syntax	compatibility-mode (digital-link kentrox larscom) <subrate <i>value</i> >;
Hierarchy Level	[edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t3-options]
Description	Configure the E3 or T3 interface to be compatible with the channel service unit (CSU) at the remote end of the line.
Options	<p>digital-link—Configure compatibility with Digital Link CSUs. If you include this option on an E3 interface, you must also disable payload scrambling.</p> <p>kentrox—Configure compatibility with Kentrox CSUs.</p> <p>larscom—Configure compatibility with Larscom CSUs (valid for T3 only, no Larscom E3 CSU).</p> <p>subrate <i>value</i>—(Optional; for Digital Link E3 or T3 and Larscom T3 CSUs only) Subrate of the E3 or T3 line. The subrate of an E3 or T3 interface must exactly match that of the remote CSU. For Digital Link CSUs, specify the subrate <i>value</i> as the data rate you configured on the CSU in the format <i>x</i>kb or <i>x</i>.xMb. For a list of specific rate values, use the command completion feature in the CLI. For Larscom CSUs, <i>value</i> can be a number from 1 through 14 that exactly matches the value configured on the CSU. Default: If you omit this option, the full E3 or T3 rate is used. Range: For E3 Digital Link CSUs, 358 kbps through 33.7 Mbps. For T3 Digital Link CSUs, 301 kbps through 44.2 Mbps.</p>
Usage Guidelines	See “Configure E3 and T3 CSU Compatibility Mode” on page 71, “Configure CSU Compatibility Mode” on page 218, or page 303.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	payload-scrambler on page 377

connections

Syntax

```
connections {
    interface-switch connection-name {
        interface interface-name.unit-number;
        interface interface-name.unit-number;
    }
}
```

Hierarchy Level [edit protocols]

Description Define the connection between two circuits in a circuit cross-connect (CCC) connection.

Options The statements are explained separately.

Usage Guidelines See “Configure Layer 2 Switching Cross-Connects” on page 164.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

See Also *JUNOS Internet Software Configuration Guide: MPLS Applications*.

core-dump

Syntax (core-dump | no-core-dump);

Hierarchy Level [edit interfaces *mo-fpc/pic/port* multiservice-options]

Description A useful tool for isolating the cause of a problem. Core dumping is enabled by default. The directory `/var/tmp` contains core files. The software saves the current core file (0) and the four previous core files, which are numbered 1 through 4 (from newest to oldest):

core-dump—Enable the core dumping operation.

no-core-dump—Disable the core dumping operation.

Usage Guidelines See “Configure Multiservice Physical Interface Properties” on page 81.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

dce

Syntax	dce;
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	For Frame Relay only, respond to status enquiry messages. When you configure the router to be a DCE, keepalives are disabled by default.
Default	The router operates in DTE mode.
Usage Guidelines	See “Configure the Router as a DCE” on page 53 or page 255.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

description

Syntax	description <i>text</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Provide a textual description of the interface or the logical unit. Any descriptive text you include is displayed in the output of the show interfaces commands. It has no effect on the operation of the interface or the router.
Options	<i>text</i> —Text to describe the interface. If the text includes spaces, enclose the entire text in quotation marks.
Usage Guidelines	See “Add an Interface Description to the Configuration” on page 40 and “Add a Logical Unit Description to the Configuration” on page 103.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

destination

destination (address)

Syntax	destination <i>destination-address</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> tunnel]
Description	For point-to-point interfaces only, specify the address of the interface at the remote end of the connection. For tunnel interfaces, specify the remote address of the tunnel.
Options	<i>destination-address</i> —Address of the remote side of the connection.
Usage Guidelines	See “Configure the Interface Address” on page 129 and “Configure a Unicast Tunnel” on page 312.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	point-to-point on page 377

destination (routing instance)

Syntax	destination <i>routing-instance-name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> tunnel routing-instance]
Description	Specify the destination routing instance that points to the routing table containing the tunnel destination address.
Default	The default Internet routing table inet.0.
Usage Guidelines	See “Configure a VPN Loopback Tunnel for Route Table Lookup” on page 313.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

destination-class-usage

Syntax	destination-class-usage;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet accounting], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet6 accounting]
Description	Enable packet counters on an interface that count packets that arrive from specific customers and are destined for specific prefixes on the provider core router.
Usage Guidelines	See “Enable Source Class and Destination Class Usage” on page 147.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	accounting on page 321 and source-class-usage on page 389

disable

Syntax	disable;
Hierarchy Level	[edit interfaces <i>interface-name</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Disable a physical or a logical interface, effectively unconfiguring it.
Usage Guidelines	See “Disable a Physical Interface” on page 58 and “Disable a Logical Interface” on page 108.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

dlci

Syntax	dlci <i>dlci-identifier</i> remote-address <i>address</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For Frame Relay encapsulation only, and for point-to-point interfaces only, configure the data-link connection identifier (DLCI) for a PVC or an SVC. To configure a DLCI for a point-to-multipoint interface, specify the DLCI in the multipoint-destination statement.
Options	<i>address</i> —IP address of the remote side of the connection. This IP address is mapped to the DLCI. <i>dlci-identifier</i> —Data-link connection identifier. Range: 1 through 1022
Usage Guidelines	See “Configure a Point-to-Point Frame Relay Connection” on page 108 or page 255.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	encapsulation on page 345, multipoint-destination on page 370

drop-timeout

Syntax	drop-timeout <i>milliseconds</i> ;
Hierarchy Level	[edit interfaces <i>ml-fpc/pic/port</i> unit <i>logical-unit-number</i>]
Description	For multilink interfaces only, configure the drop timeout period, in milliseconds.
Options	<i>milliseconds</i> —Drop timeout period. Range: 1 through 127 milliseconds Default: 0 ms (disabled)
Usage Guidelines	See “Configure a Drop Timeout Period” on page 108 or page 263.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

ds0-options

Syntax	ds0-options { byte-encoding (nx56 nx 64) fcs (32 16); idle-cycle-flag (flags ones); invert-data; loopback (local remote); start-end-flag (shared filler); }
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure DS-0-specific physical interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure Channelized DS-3 to DS-0 Interfaces” on page 191.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

e1-options

Syntax	<pre>e1-options { bert-error-rate <i>rate</i>; bert-period <i>seconds</i>; fcs (32 16); framing (g704 g704-no-crc4 unframed); idle-cycle-flag (flags ones); invert-data; loopback (local remote); start-end-flag (shared filler); timeslots <i>slot-number</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure E1-specific physical interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure E1 and T1 Physical Interface Properties” on page 64 or “Configure E1 Interfaces” on page 211.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

e3-options

Syntax	<pre>e3-options { bert-algorithm <i>algorithm</i>; bert-error-rate <i>rate</i>; bert-period <i>seconds</i>; compatibility-mode (digital-link kentrox larscom)<subrate <i>value</i>>; fcs (32 16); idle-cycle-flag <i>value</i>; loopback (local remote); start-end-flag <i>value</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure E3-specific physical interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure E3 and T3 Physical Interface Properties” on page 70 or “Configure E3 Interfaces” on page 217.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

encapsulation

encapsulation (physical interface)

Syntax encapsulation (atm-ccc-cell-relay | atm-pvc | cisco-hdlc | cisco-hdlc-ccc | cisco-hdlc-tcc | ethernet-ccc | frame-relay | frame-relay-ccc | frame-relay-tcc | ppp | ppp-ccc | ppp-tcc | vlan-ccc | extended-vlan-ccc);

Hierarchy Level [edit interfaces *interface-name*]

Description Physical link-layer encapsulation type.

Options atm-ccc-cell-relay—Use ATM cell relay encapsulation.

atm-pvc—Use ATM PVC encapsulation.

cisco-hdlc—Use Cisco-compatible HDLC framing.

cisco-hdlc-ccc—Use Cisco-compatible HDLC framing on circuit cross-connect (CCC) circuits.

cisco-hdlc-tcc—Use Cisco-compatible HDLC framing on translational cross-connect (TCC) circuits for connecting unlike media.

ethernet-ccc—Use Ethernet CCC encapsulation on Ethernet interfaces that must accept packets carrying standard Tag Protocol ID (TPID) values.

ethernet-tcc—For interfaces that carry IPv4 traffic, use Ethernet TCC encapsulation on interfaces that must accept packets carrying standard Tag Protocol ID (TPID) values. Ethernet TCC is not currently supported on Fast Ethernet 48-port PICs or the T-series platforms.

extended-vlan-ccc—Use extended VLAN encapsulation on CCC circuits with Gigabit Ethernet interfaces that must accept packets carrying 802.1Q values.

extended-vlan-tcc—For interfaces that carry IPv4 traffic, use extended VLAN encapsulation on TCC circuits with Gigabit Ethernet interfaces on which you want to use 802.1Q tagging. Extended Ethernet TCC is not currently supported on Fast Ethernet 48-port PICs or the T-series platforms.

frame-relay—Use Frame Relay encapsulation.

frame-relay-ccc—Use plain Frame Relay encapsulation or Frame Relay encapsulation on circuit cross-connect (CCC) circuits.

frame-relay-tcc—Use Frame Relay encapsulation on TCC circuits for connecting unlike media.

ppp—Use serial point-to-point (PPP) encapsulation.

ppp-ccc—Use serial PPP encapsulation on CCC circuits. When you use this encapsulation, you can configure the family ccc only.

ppp-tcc—Use serial PPP encapsulation on TCC circuits for connecting unlike media. When you use this encapsulation, you can configure the family tcc only.

vlan-ccc—Use Ethernet Virtual Local Area Network (VLAN) encapsulation on CCC circuits.

Default PPP encapsulation.

Usage Guidelines See “Configure Interface Encapsulation” on page 44, “Configure ATM Interface Encapsulation” on page 184, “Configure Layer 2 Switching Cross-Connects” on page 164, “Configure VLAN CCC Encapsulation” on page 235, or “Configure Extended VLAN Cross-Connect Encapsulation” on page 236.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

encapsulation (logical interface)

Syntax	encapsulation (atm-ccc-cell-relay atm-ccc-vc-mux atm-tcc-vc-mux atm-cisco-nlpid atm-nlpid atm-snap atm-tcc-snap atm-vc-mux ether-over-atm-llc frame-relay-ccc frame-relay-tcc multilink-framerelay multilink-ppp vlan-ccc);
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Logical link-layer encapsulation type.
Options	<p>atm-ccc-cell-relay—Use ATM cell relay encapsulation.</p> <p>atm-ccc-vc-mux—Use ATM VC multiplex encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you can configure the family ccc only.</p> <p>atm-tcc-vc-mux—Use ATM VC multiplex encapsulation on translational cross-connect (TCC) circuits. When you use this encapsulation, you can configure the family tcc only.</p> <p>atm-cisco-nlpid—Use Cisco ATM NLPID encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>atm-nlpid—Use ATM NLPID encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>atm-snap—Use ATM SNAP encapsulation.</p> <p>atm-tcc-snap—Use ATM SNAP encapsulation on translational cross-connect (TCC) circuits.</p> <p>atm-vc-mux—Use ATM VC mux encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>ether-over-atm-llc—For interfaces that carry IPv4 traffic, use Ethernet over ATM LLC encapsulation. When you use this encapsulation, you cannot configure multipoint interfaces.</p> <p>frame-relay-ccc—Use Frame Relay encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you can configure the family ccc only.</p> <p>frame-relay-tcc—Use Frame Relay encapsulation on TCC circuits for connecting unlike media. When you use this encapsulation, you can configure the family tcc only.</p> <p>multilink-framerelay—Use Multilink Frame Relay (MLFR) encapsulation. This encapsulation is used only on multilink interfaces and their constituent T1 or E1 interfaces.</p>

	multilink-ppp—Use Multilink Point-to-Point Protocol (MLPPP) encapsulation. This encapsulation is used only on multilink interfaces and their constituent T1 or E1 interfaces.
	vlan-ccc—Use Ethernet Virtual Local Area Network (VLAN) encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you can configure the family ccc only.
Usage Guidelines	See “Configure Interface Encapsulation” on page 106, “Configure ATM Interface Encapsulation” on page 184, “Configure Circuit and Translational Cross-Connects” on page 163, “Configure VLAN CCC Encapsulation” on page 235, “Configure Extended VLAN Cross-Connect Encapsulation” on page 236, or “Configure Encapsulation” on page 263.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

eui-64

Syntax	eui-64;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>number</i> family ipv6 address <i>address</i>]
Description	For interfaces that carry IPv6 traffic, automatically generate the host number portion of interface addresses.
Usage Guidelines	See “Configure the Interface Address” on page 129.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: IPv6</i> .

family

Syntax

```
family family {
    accounting {
        destination-class-usage;
        source-class-usage {
            (input | output | [input output]);
        }
    }
    bundle ml-fpc/pic/port;
    filter {
        input filter-name;
        output filter-name;
        group filter-group-number;
    }
    ipsec-sa sa-name;
    mtu bytes;
    multicasts-only;
    no-redirects;
    policer {
        input policer-template-name;
        output policer-template-name;
    }
    primary;
    remote mac-address address;
    rpf-check fail-filter filter-name;
    address address {
        arp ip-address (mac | multicast-mac) mac-address <publish>;
        destination destination-address;
        eui-64;
        broadcast address;
        multipoint-destination destination-address dlcidlcid-identifier;
        multipoint-destination destination-address {
            inverse-arp;
            oam-liveness {
                up-count cells;
                down-count cells;
            }
            oam-period seconds;
            shaping {
                (cbr rate | vbr peak rate sustained rate burst length);
                queue-length number;
            }
            vci vpi-identifier.vci-identifier;
        }
        primary;
        preferred;
        vrrp-group group-number {
            virtual-address [ addresses ];
            priority number;
            (accept-data | no-accept-data);
            advertise-interval seconds;
            authentication-type authentication;
            authentication-key key;
            (preempt | no-preempt);
            track {
                interface interface-name priority-cost cost;
            }
        }
    }
}
```


Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Configure protocol family information for the logical interface.
Options	<i>family</i> —Protocol family: inet—Internet Protocol version 4 suite inet6—Internet Protocol version 6 suite iso—OSI ISO protocol suite mlfr—Multilink Frame Relay multilink-ppp—Multilink Point-to-Point Protocol mpls—Multiprotocol label switching tnp—Trivial Network Protocol The remaining statements are explained separately.
Usage Guidelines	See “Configure the Protocol Family” on page 127.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

fastether-options

Syntax	<pre>fastether-options { 802.3ad aex; (flow-control no-flow-control); ingress-rate-limit <i>rate</i>; (loopback no-loopback); source-address-filter { <i>mac-address</i>; } (source-filtering no-source-filtering); }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure Fast Ethernet-specific interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure Ethernet Physical Interface Properties” on page 77 or page 230.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

fcs

Syntax fcs (32 | 16);

Hierarchy Level [edit interfaces *interface-name* ds0-options],
[edit interfaces *interface-name* e1-options],
[edit interfaces *interface-name* e3-options],
[edit interfaces *interface-name* sonet-options],
[edit interfaces *interface-name* t1-options],
[edit interfaces *interface-name* t3-options]

Description For E1/E3, SONET/SDH, and T1/T3 interfaces, configure the frame checksum on the interface. The checksum must be the same on both ends of the interface.

On a Channelized OC-12 interface, the SONET fcs statement is not supported. To configure FCS on each DS-3 channel, you must include the t3-options fcs statement in the configuration for each channel. For SONET, the Channelized OC-12 interface supports DS-3 to STS-1 to OC-12. For SDH, the Channelized OC-12 interface supports *nxDS-3* to *nxVC3* to AU3 to STM-*n*.

Default 16-bit frame checksum

Options 16—Use a 16-bit frame checksum on the interface.

32—Use a 32-bit frame checksum on the interface. Using a 32-bit checksum provides more reliable packet verification, but some older equipment may not support 32-bit checksums.

Default: 16

Usage Guidelines See “Configure the E3 and T3 Frame Checksum” on page 72, “Configure E3 BERT Properties” on page 218, “Configure the SONET Frame Checksum” on page 275, or “Configure the Frame Checksum” on page 304; “Configure the E1 and T1 Frame Checksum” on page 66, “Configure the E1 Frame Checksum” on page 212, or “Configure T1 Frame Checksum” on page 297; “Configure the SONET Frame Checksum” on page 85 or page 275.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

feac-loop-respond

Syntax	(feac-loop-respond no-feac-loop-respond);
Hierarchy Level	[edit interfaces <i>interface-name</i> t3-options]
Description	<p>For T3 interfaces only, configure the router so that a remote CSU can place the local router into loopback.</p> <p>If you have configured remote or local loopback with the T3 loopback statement, the router will not respond to FEAC requests from the CSU even if you have included the feac-loop-respond statement in the configuration. To have the router respond, you must delete the loopback statement from the configuration.</p>
Default	The router does not respond to FEAC requests.
Usage Guidelines	See “Configure T3 FEAC Response” on page 74 or “Configure FEAC Response” on page 304.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	loopback on page 365

filter

Syntax	<pre>filter { input <i>filter-name</i>; output <i>filter-name</i>; group <i>filter-group-number</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet]
Description	Apply a firewall filter to an interface. You can also use filters for encrypted traffic.
Options	<p>group <i>filter-group-number</i>—Define an interface to be part of a filter group. The default filter group number is 0.</p> <p>input <i>filter-name</i>—Name of one filter to evaluate when packets are received on the interface.</p> <p>output <i>filter-name</i>—Name of one filter to evaluate when packets are transmitted on the interface.</p>
Usage Guidelines	See “Apply Firewall Filters” on page 142 or the <i>JUNOS Internet Software Configuration Guide: Policy Framework</i> . See “Configure Encryption Interfaces” on page 223 or the <i>JUNOS Internet Software Configuration Guide: Getting Started</i> .
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	The <i>JUNOS Internet Software Configuration Guide: Policy Framework</i> or the <i>JUNOS Internet Software Configuration Guide: Getting Started</i> .

flow-control

Syntax	flow-control;
Hierarchy Level	[edit interfaces <i>interface-name</i> aggregated-ether-options], [edit interfaces <i>interface-name</i> fastether-options], [edit interfaces <i>interface-name</i> gigheter-options]
Description	For aggregated Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces only, explicitly enable flow control, which regulates the flow of packets from the router to the remote side of the connection. Enabling flow control is useful when the remote device is a Gigabit Ethernet switch.
Default	Flow control is the default behavior.
Usage Guidelines	See “Configure Flow Control” on page 80 or page 233.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

force

Syntax	force (protect working);
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Perform a forced switch between the protect and working circuits. This statement is honored only if there are no higher-priority reasons to switch. It can be overridden by a signal failure on the protect circuit, thus causing a switch to the working circuit.
Options	protect—Request the circuit to become the protect circuit. working—Request the circuit to become the working circuit.
Usage Guidelines	See “Configure Switching between the Working and Protect Circuits” on page 90 or page 281.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	request on page 383

fragment-threshold

Syntax	fragment-threshold <i>bytes</i> ;
Hierarchy Level	[edit interfaces <i>ml-fpc/pic/port</i> unit <i>logical-unit-number</i>]
Description	For multilink interfaces only, set the fragmentation threshold, in bytes.
Options	<i>bytes</i> —Maximum size for multilink packet fragments. Non-zero values must be a multiple of 64 bytes. Range: 128 through 16320 bytes Default: 0 bytes (no fragmentation)
Usage Guidelines	See “Configure a Fragmentation Threshold” on page 110 or page 264.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

framing

Syntax	framing (g704 g704-no-crc4 g751 g832 unframed sf esf);
Hierarchy Level	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>at-fpc/pic/port</i> e3-options], [edit interfaces <i>interface-name</i> t1-options]
Description	Configure the framing format.
Default	esf for T1 interfaces; g704 for E1 interfaces. There is no default value for E3 over ATM interfaces.
Options	esf—ESF (extended super frame) mode for T1 interfaces. g704—G.704 framing format for E1 interfaces. g704-no-crc4—G.704 framing with no CRC4 for E1 interfaces. g751—G.751 framing format for E3 over ATM interfaces. g832—G.832 framing format for E3 over ATM interfaces. sf—SF (super frame) mode for T1 interfaces. unframed—Unframed mode for E1 interfaces.
Usage Guidelines	See “Configure E1 Framing” on page 67 or page 213; “Configure T1 Framing” on page 67 or page 298; “Configure E3 and T3 Parameters on ATM Interfaces” on page 186.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

gigether-options

Syntax gigether-options {
802.3ad aex;
(flow-control | no-flow-control);
(loopback | no-loopback);
source-address-filter {
 mac-address;
}
(source-filtering | no-source-filtering);
}

Hierarchy Level [edit interfaces *interface-name*]

Description Configure Gigabit Ethernet-specific interface properties.

Options The statements are explained separately.

Usage Guidelines See “Configure Ethernet Physical Interface Properties” on page 77 or page 230.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

hold-time

hold-time (physical interface)

Syntax	hold-time up <i>milliseconds</i> down <i>milliseconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Hold-time value to use to damp interface transitions. When an interface goes from up to down, it is not advertised to the rest of the system as being down until it has remained down for the hold-time period. Similarly, an interface is not advertised as being up until it has remained up for the hold-time period.
Default	Interface transitions are not damped.
Options	<p>down <i>milliseconds</i>—Hold time to use when an interface transitions from up to down. Upon execution, the time value that you specify is rounded up to the nearest whole second; therefore, we recommend that you configure the down option to multiples of 1000. Range: 0 through 65,534 Default: 0 milliseconds (interface transitions are not damped)</p> <p>up <i>milliseconds</i>—Hold time to use when an interface transitions from down to up. Upon execution, the time value that you specify is rounded up to the nearest whole second; therefore, we recommend that you configure the up option to multiples of 1000. Range: 0 through 65,534 Default: 0 milliseconds (interface transitions are not damped)</p>
Usage Guidelines	See “Damp Interface Transitions” on page 57.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	advertise-interval on page 323

hold-time (APS)

Syntax	hold-time <i>milliseconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Hold-time value to use to determine whether a neighbor APS router is operational.
Options	<p><i>milliseconds</i>—Hold-time value. Range: 1 through 65,534 milliseconds Default: 3000 milliseconds (3 times the advertisement interval)</p>
Usage Guidelines	See “Configure APS Timers” on page 91 or page 282.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	advertise-interval on page 323

idle-cycle-flag

Syntax `idle-cycle-flag value;`

Hierarchy Level [edit interfaces *interface-name* ds0-options],
[edit interfaces *interface-name* e1-options],
[edit interfaces *interface-name* e3-options],
[edit interfaces *interface-name* t1-options],
[edit interfaces *interface-name* t3-options]

Description Configure the value that the DS-0, E1, E3, T1, or T3 interface transmits during idle cycles.

Options *value*—Value to transmit in the idle cycles:

flags—Transmit the value 0x7E.

ones—Transmit the value 0xFF (all ones).

Default: flags

Usage Guidelines See “Configure the E3 and T3 Idle Cycle Flag” on page 75, “Configure the Idle Cycle Flag” on page 219, or “Configure the Start End Flags” on page 307; “Configure the E1 and T1 Idle Cycle Flag” on page 68, “Configure E1 Idle Cycle Flag” on page 213, or “Configure T1 Idle Cycle Flag” on page 299.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

ilmi

Syntax `ilmi;`

Hierarchy Level [edit interfaces *interface-name* atm-options]

Description Enable the router to communicate with directly attached ATM switches. The router uses the VC 0.16 to communicate with the ATM switch. Once configured, you can display the IP address and port number of an ATM switch using the show interfaces *interface-name* switch-id command.

Usage Guidelines See “Configure Communication with Directly Attached ATM Switches” on page 63 or page 176.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also show ilmi and show ilmi statistics commands in the *JUNOS Internet Software Operational Mode Command Reference*.

ingress-rate-limit

Syntax	ingress-rate-limit <i>rate</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> fastether-options]
Description	Perform port-based rate limiting on ingress traffic arriving on Fast Ethernet 8-port, 12-port, and 48-port PICs.
Options	<i>rate</i> —Traffic rate in Mbps. Range: 1 through 100 Mbps.
Usage Guidelines	See “Configure the Ingress Rate Limit” on page 81 or page 234.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

interfaces

Syntax	interfaces { ... }
Hierarchy Level	[edit]
Description	Configure interfaces on the router.
Default	The management and internal Ethernet interfaces are automatically configured. You must configure all other interfaces.
Usage Guidelines	See “Interfaces Configuration Statements” on page 25.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

interface-switch

Syntax interface-switch *connection-name* {
 interface *interface-name.unit-number*;
 interface *interface-name.unit-number*;
 }

Hierarchy Level [edit protocols connections]

Description Configure Layer 2 switching cross-connects. The cross-connect is bidirectional, so packets received on the first interface are transmitted out the second interface, and those received on the second interface are transmitted out the first.

For Layer 2 switching cross-connects to work, you must also configure MPLS.

Options interface *interface-name.unit-number*—Interface name. Include the logical portion of the name, which corresponds to the logical unit number.

Usage Guidelines See “Configure Layer 2 Switching Cross-Connects” on page 164.

Required Privilege Level routing—To view this statement in the configuration.
 routing-control—To add this statement to the configuration.

See Also *JUNOS Internet Software Configuration Guide: MPLS Applications* .

inverse-arp

Syntax inverse-arp;

Hierarchy Level [edit interfaces *interface-name* unit *logical-unit-number*],
 [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address*
 multipoint-destination *destination*]

Description For ATM encapsulation, enable responses to received inverse ATM ARP requests. For Frame Relay encapsulation, enable responses to received inverse Frame Relay ARP requests.

Default Inverse ARP is disabled on all ATM and Frame Relay interfaces.

Usage Guidelines See “Configure Inverse ATM ARP” on page 110, page 135, or page 178; “Configure Inverse Frame Relay ARP” on page 111, page 135, or page 255.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

invert-data

Syntax	invert-data;
Hierarchy Level	[edit interfaces <i>interface-name</i> ds0-options], [edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> t1-options]
Description	Invert the transmission of unused data bits on the DS-0, T1, or E1 interface.
Usage Guidelines	See “Configure E1 and T1 Data Inversion” on page 66, “Configure E1 Data Inversion” on page 214, and “Configure T1 Data Inversion” on page 297.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

ipsec-sa

Syntax	ipsec-sa <i>sa-name</i> ;
Hierarchy Level	[edit interfaces <i>es-fpc/pic/port</i> unit <i>logical-unit-number</i> family inet]
Description	Specify the Internet Protocol security architecture (IPSec) security association (SA) name associated with the interface.
Options	<i>sa-name</i> —IPSEC security association name.
Usage Guidelines	See “Configure Encryption Interfaces” on page 223.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: Getting Started</i>

keepalives

Syntax	keepalives <interval <i>seconds</i> > <down-count <i>number</i> > <up-count <i>number</i> >;
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Enable the sending of keepalives on a physical interface configured with PPP, Frame Relay, or Cisco HDLC encapsulation.
Default	Sending of keepalives is enabled by default. The default keepalive interval is 10 seconds for PPP, Frame Relay, or Cisco HDLC. The default down-count is 3 and the default up-count is 1 for PPP or Cisco HDLC.
Options	<p>down-count <i>number</i>—The number of keepalive packets a destination must fail to receive before the network takes down a link. Range: 1 through 255 Default: 3</p> <p>interval <i>seconds</i>—The time in seconds between successive keepalive requests. Range: 1 through 32767 seconds Default: 10 seconds</p> <p>up-count <i>number</i>—The number of keepalive packets a destination must receive to change a link's status from down to up. Range: 1 through 255 Default: 1</p>
Usage Guidelines	See “Configure Keepalives” on page 50 or page 253.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

line-encoding

Syntax	line-encoding (ami b8zs);
Hierarchy Level	[edit interfaces <i>interface-name</i> t1-options]
Description	Set the line encoding format on the T1 interface.
Default	The default line encoding is to use B8ZS.
Options	<p>ami—Use AMI line encoding.</p> <p>b8zs—Use B8ZS line encoding.</p>
Usage Guidelines	See “Configure T1 Line Encoding” on page 68 or page 298.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

link-mode

Syntax	link-mode (full-duplex half-duplex);
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Set the device's link connection characteristic.
Default	The router's management Ethernet interface, fxp0, autonegotiates whether to operate in full-duplex or half-duplex mode. Fast Ethernet interfaces can operate in either full-duplex or half-duplex mode, and all other interfaces operate only in full-duplex mode.
Options	full-duplex—Connection is full duplex. half-duplex—Connection is half duplex.
Usage Guidelines	See "Configure the Link Characteristics" on page 40 or page 233.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

link-speed

Syntax	link-speed <i>speed</i> ;
Hierarchy Level	[edit interfaces asx aggregated-sonet-options], [edit interfaces asx aggregated-ether-options]
Description	For aggregated SONET/SDH and aggregated Ethernet interfaces only, set the required link speed.
Options	<i>speed</i> —For aggregated Ethernet links, you can specify <i>speed</i> in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). Aggregated SONET/SDH links can have one of the following speed values. oc3—Links are OC-3c or STM-1c. oc12—Links are OC-12c or STM-4c. oc48—Links are OC-48c or STM-16c. oc192—Links are OC-192c or STM-64c.
Usage Guidelines	See "Configure Aggregated SONET/SDH Interfaces" on page 94 or page 290 and "Configure Aggregated Ethernet Interfaces" on page 59 or page 247.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

lmi

Syntax lmi {
 lmi-type (ansi | itu);
 n391dte *number*;
 n392dce *seconds*;
 n392dte *number*;
 n393dce *number*;
 n393dte *number*;
 t391dte *number*;
 t392dce *seconds*;
 }

Hierarchy Level [edit interfaces *interface-name*]

Description Set Frame Relay keepalive parameters.

Options n391dte—DTE full status polling interval.

Range: 1 through 255

Default: 6

n392dce—DCE error threshold, in number of errors.

Range: 1 through 10

Default: 3

n392dte—DTE error threshold, in number of errors.

Range: 1 through 10

Default: 3

n393dce—DCE monitored event-count.

Range: 1 through 10

Default: 4

n393dte—DTE monitored event-count.

Range: 1 through 10

Default: 4

t391dte—DTE polling timer.

Range: 5 through 30 seconds

Default: 10 seconds

t392dce—DCE polling timer.

Range: 5 through 30 seconds

Default: 15 seconds

The remaining statements are described separately.

Usage Guidelines See “Configure Keepalive Settings on Frame Relay LMI” on page 51 or page 254.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

See Also lmi-type on page 364

lmi-type

Syntax	lmi-type (ansi itu);
Hierarchy Level	[edit interfaces <i>interface-name</i> lmi]
Description	Set Frame Relay LMI type.
Options	ansi—Use ANSI T1.167 Annex D LMIs. itu—Use ITU Q933 Annex A LMIs.
Usage Guidelines	See “Configure Keepalive Settings on Frame Relay LMI” on page 51 or page 254.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	lmi on page 363

local-name

Syntax	local-name <i>name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> ppp-options chap]
Description	Value sent in CHAP challenge and response packets on a per interface basis. If not included in the configuration, the interface sends the router’s system host name in CHAP challenge and response packets.
Usage Guidelines	See “Configure PPP Challenge Handshake Authentication Protocol” on page 47.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: Getting Started</i> .

lockout

Syntax	lockout;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Configure a lockout of protection, forcing the use of the working circuit and locking out the protect circuit regardless of anything else.
Usage Guidelines	See “Configure Switching between the Working and Protect Circuits” on page 90 or page 281.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

long-buildout

Syntax	(long-buildout no-long-buildout);
Hierarchy Level	[edit interfaces <i>interface-name</i> t3-options]
Description	<p>Configure the T3 line buildout. A T3 interface has two settings for the T3 line buildout: a short setting, which is less than 225 feet (about 68 meters), and a long setting, which is greater than 225 feet.</p> <p>This statement applies to copper-cable-based T3 interfaces only. You cannot configure a line buildout for a DS-3 channel on a Channelized OC-12 interface, which runs over fiber-optic cable.</p>
Default	A T3 interface uses the short line buildout setting (no-long-buildout) for wires shorter than 225 feet (about 68 meters).
Usage Guidelines	See “Configure the T3 Line Buildout” on page 74 or “Configure the Start End Flags” on page 307.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

loopback

loopback (Aggregated Ethernet, Fast Ethernet, and Gigabit Ethernet)

Syntax	(loopback no-loopback);
Hierarchy Level	<p>[edit interfaces <i>interface-name</i> aggregated-ether-options],</p> <p>[edit interfaces <i>interface-name</i> fastether-options],</p> <p>[edit interfaces <i>interface-name</i> gigether-options]</p>
Description	Enable or disable loopback mode.
Usage Guidelines	See “Configure Loopback Mode” on page 80 or page 233.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

loopback (E1/E3, SONET, and T1/T3)

Syntax	(loopback (local remote);
Hierarchy Level	[edit interfaces <i>interface-name</i> ds0-options], [edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> sonet-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
Description	Configure a loopback connection. To turn off loopback, remove the loopback statement from the configuration. For DS-3 channels on a Channelized OC-12 interface, the sonet-options loopback statement is supported only for channel 0. It is ignored if you include it in the configuration for channels 1 through 11. The SONET loopback configured for channel 0 applies to all 12 channels equally. To configure loopbacks on the DS-3 channels, you must include the t3-options loopback statement in the configuration for each channel. Each DS-3 channel can be put in loopback mode independently.
Options	local—Loop packets back on the local router's PIC. remote—Loop packets back on the remote router's interface card.
Usage Guidelines	See “Configure E3 and T3 Loopback Capability” on page 73, “Configure E3 Loopback Capability” on page 220, or “Configure Loopback Capability” on page 305; “Configure E1 and T1 Loopback Capability” on page 68, “Configure E1 Loopback Capability” on page 214, or “Configure T1 Loopback Capability” on page 299; “Configure SONET Loopback Capability” on page 85 or page 276; “Configure E3 and T3 Parameters on ATM Interfaces” on page 186.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	feac-loop-respond on page 352

mac

Syntax	mac <i>mac-address</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Set the MAC address of the interface. You can configure the MAC address on the management Ethernet interface (fxp0) only.
Options	<i>mac-address</i> —MAC address. Specify the MAC address as six hexadecimal bytes in one of the following formats: <i>nnnn.nnnn.nnnn</i> or <i>nn:nn:nn:nn:nn:nn</i> . For example, 0011.2233.4455 or 00:11:22:33:44:55.
Usage Guidelines	See “Configure the MAC Address on the Management Ethernet Interface” on page 50.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

minimum-links

Syntax	<code>minimum-links <i>number</i>;</code>
Hierarchy Level	[edit interfaces <i>aex</i> aggregated-ether-options], [edit interfaces <i>asx</i> aggregated-sonet-options], [edit interfaces <i>ml-fpc/pic/port</i> unit <i>logical-unit-number</i>]
Description	For aggregated Ethernet, SONET/SDH, or multilink interfaces only, set the minimum number of links that must be up for the bundle to be labeled up.
Options	<i>number</i> —Number of links. Range: 1 through 8 Default: 1
Usage Guidelines	See “Configure Aggregated Ethernet Minimum Links” on page 79 or page 232; “Configure Aggregated SONET Minimum Links” on page 97 or page 292; “Configure Multilink Minimum Links” on page 111 or page 264.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

mrru

Syntax	<code>mrru <i>bytes</i>;</code>
Hierarchy Level	[edit interfaces <i>ml-fpc/pic/port</i> unit <i>logical-unit-number</i>]
Description	For multilink interfaces only, set the maximum received reconstructed unit (MRRU). The MRRU is similar to the MTU, but specific to multilink interfaces.
Options	<i>bytes</i> —MRRU size. Range: 1500 through 4500 bytes Default: 1524 bytes
Usage Guidelines	See “Configure MRRU” on page 112 and page 265.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	mtu on page 368

mtu

Syntax	mtu <i>bytes</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i>]
Description	Maximum transmission unit (MTU) size for the media or protocol. The default MTU size depends on the device type. Not all devices allow you to set an MTU value, and some devices have restrictions on the range of allowable MTU values.
Options	<i>bytes</i> —MTU size. Range: 0 through 5012 bytes
Usage Guidelines	See “Configure the Media MTU” on page 41 and “Set the Protocol MTU” on page 131.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

multicast-dlci

Syntax	multicast-dlci <i>dlci-identifier</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For point-to-multipoint Frame Relay interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the Frame Relay switch performs multicast replication.
Options	<i>dlci-identifier</i> —DLCI identifier, which is a number from 1 through 1022 that defines the Frame Relay DLCI over which the switch is expecting to receive multicast packets for replication.
Usage Guidelines	See “Configure a Multicast-Capable Frame Relay Connection” on page 112 or page 257.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	dlci on page 342, multipoint-destination on page 370

• multicast-vci

Syntax	multicast-vci <i>vpi-identifier.vci-identifier</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For ATM encapsulation only, and for point-to-multipoint ATM logical interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the ATM switch performs multicast replication.
Options	<i>vci-identifier</i> —ATM virtual circuit identifier. Range: 0 through 16384 <i>vpi-identifier</i> —ATM virtual path identifier. Range: 0 through 255 Default: 0
Usage Guidelines	See “Configure the ATM OAM F5 Loopback Cell Threshold” on page 114 or page 178.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	multipoint-destination on page 370, vci on page 402

• multicasts-only

Syntax	multicasts-only;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet]
Description	Configure the unit and family so that it can transmit and receive multicast traffic only. You can configure this property on the IP family only.
Usage Guidelines	See “Configure Tunnel Interfaces” on page 311.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	tunnel on page 398

• multipoint

Syntax	multipoint;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Configure the interface unit as a multipoint connection.
Default	If you omit this statement, the interface unit is configured as a point-to-point connection.
Usage Guidelines	See “Configure a Multipoint Connection” on page 104.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	point-to-point on page 377

multipoint-destination

Syntax	<pre> multipoint-destination <i>destination-address</i> dlc <i>dlci-identifier</i>; multipoint-destination <i>destination-address</i> { inverse-arp; oam-liveness { up-count <i>cells</i>; down-count <i>cells</i>; } oam-period <i>seconds</i>; shaping { vbr peak <i>rate</i> sustained <i>rate</i> burst <i>length</i>; queue-length <i>number</i>; } vci <i>vpi-identifier.vci-identifier</i>; } </pre>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>]
Description	For point-to-multipoint Frame Relay or ATM interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the Frame Relay or ATM switch performs multicast replication.
Options	<p><i>destination-address</i>—Address of the remote side of the point-to-multipoint connection.</p> <p><i>dlci-identifier</i>—For Frame Relay interfaces, the data-link connection identifier. Range: 0 through 0xFFFFFF (24 bits)</p> <p><i>vci-identifier</i>—For ATM interfaces, the virtual circuit identifier. Range: 0 through 16384</p> <p><i>vpi-identifier</i>—For ATM interfaces, the virtual path identifier. Range: 0 through 255 Default: 0</p> <p>The remaining statements are explained separately.</p>
Usage Guidelines	See “Configure a Point-to-Multipoint ATM Connection” on page 134 or page 178, and “Configure a Point-to-Multipoint Frame Relay Connection” on page 140 or page 256.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	dlci on page 342, encapsulation on page 345

multiservice-options

Syntax multiservice-options {
 boot-command *filename*;
 (syslog | no-syslog);
 (core-dump | no-core-dump);
 }

Hierarchy Level [edit interfaces *mo-fpc/pic/port*]

Description For passive monitoring interfaces only, configure multiservice-specific interface properties.

Options The options are explained separately.

Usage Guidelines See “Configure Multiservice Physical Interface Properties” on page 81.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

See Also passive-monitor-mode on page 375

neighbor

Syntax neighbor *address*;

Hierarchy Level [edit interfaces *interface-name* sonet-options aps]

Description If you are configuring one router to be the working router and a second to be the protect router, configure the address of the remote interface. You configure this on one or both of the interfaces.

The address you specify for the neighbor must never be routed through the interface on which APS is configured, or instability will result. We strongly recommend that you directly connect the working and protect routers and that you configure the interface address of this shared network as the neighbor address.

Options *address*—Neighbor’s address.

Usage Guidelines See “Configure Basic APS Support” on page 88 or page 279.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

no-accept-data

See accept-data on page 320

no-cbit-parity

See cbit-parity on page 337

no-core-dump

See core-dump on page 340

no-feac-loop-respond

See feac-loop-respond on page 352

no-flow-control

See flow-control on page 353

no-keepalives

Syntax no-keepalives;

Hierarchy Level [edit interfaces *interface-name*]

Description Disable the sending of keepalives on a physical interface configured with PPP, Frame Relay, or Cisco HDLC encapsulation. The default keepalive interval is 10 seconds.

Usage Guidelines See “Configure Keepalives” on page 50 or page 253.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

no-loopback

See loopback on page 365

no-long-buildout

See long-buildout on page 365

no-mac

See mac on page 366

no-payload-scrambler

See payload-scrambler on page 377

no-preempt

See preempt on page 379

no-redirects

Syntax	no-redirects;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>number</i> family <i>family</i>]
Description	Do not send protocol redirect messages on the interface. To disable the sending of protocol redirect messages for the entire router, include the no-redirects statement at the [edit system] hierarchy level.
Default	Interfaces send protocol redirect messages.
Usage Guidelines	See “Disable the Sending of Redirect Messages on an Interface” on page 132.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: Getting Started.</i>

no-source-filtering

See source-filtering on page 389

no-syslog

See syslog on page 391

no-traps

Syntax	no-traps;
Hierarchy Level	[edit interfaces <i>interface-name</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Disable the sending of SNMP notifications when the state of the connection changes.
Usage Guidelines	See “Disable SNMP Notifications on Physical Devices” on page 58 and “Disable SNMP Notifications on Logical Interfaces” on page 106.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

no-z0-increment

See z0-increment on page 406

oam-liveness

Syntax	oam-liveness { up-count <i>cells</i> ; down-count <i>cells</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> multipoint-destination <i>address</i>]
Description	For ATM encapsulation only, configure OAM F5 loopback cell count thresholds.
Options	down-count <i>cells</i> —Minimum number of consecutive OAM F5 loopback cells lost before declaring that a VC is down. Range: 1 through 255 Default: 5 cells up-count <i>cells</i> —Minimum number of consecutive OAM F5 loopback cells received before declaring that a VC is up. Range: 1 through 255 Default: 5 cells
Usage Guidelines	See “Configure the ATM OAM F5 Loopback Cell Threshold” on page 114 or page 184.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

oam-period

Syntax	oam-period (disable <i>seconds</i>);
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> multipoint-destination <i>address</i>]
Description	For ATM encapsulation only, configure the OAM F5 loopback cell period.
Default	If you omit this statement, OAM F5 loopback cells are not originated, but the interface still responds if it receives OAM F5 loopback cells.
Options	disable—Disable OAM loopback cell transmit feature. <i>seconds</i> —OAM F5 loopback cell period. Range: 1 through 900 seconds
Usage Guidelines	See “Define the ATM OAM F5 Loopback Cell Period” on page 114, page 139, or page 183.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

paired-group

Syntax	<code>paired-group group-name;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Configure load sharing between two working-protect circuit pairs.
Options	<i>group-name</i> —Circuit's group name, as configured with the protect-circuit or working-circuit statement.
Usage Guidelines	See "Configure APS Load Sharing between Circuit Pairs" on page 92 or page 282.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	paired-group on page 375, working-circuit on page 405

passive

Syntax	<code>passive;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> ppp-options chap]
Description	Do not challenge the peer, but respond if challenged. If not included in the configuration, the interface always challenges its peer.
Usage Guidelines	See "Configure PPP Challenge Handshake Authentication Protocol" on page 47.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	<i>JUNOS Internet Software Configuration Guide: Getting Started</i> .

passive-monitor-mode

Syntax	<code>passive-monitor-mode;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For SONET interfaces only, monitor packet flows from another router. If you include this statement in the configuration, the SONET interface does not send keepalives or alarms, and does not participate actively on the network.
Usage Guidelines	See "Enable Passive Monitoring" on page 115.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	multiservice-options on page 371

path-trace

Syntax	<code>path-trace <i>trace-string</i>;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options]
Description	<p>For SONET interfaces only, configure a path trace identifier, which is a text string that identifies the circuit.</p> <p>On SONET OC-48 interfaces that are configured for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.</p> <p>For DS-3 channels on a Channelized OC-12 interface, you can configure a unique path trace for each of the 12 channels. Each path trace can be up to 16 bytes.</p>
Options	<i>trace-string</i> —Text string that identifies the circuit. If the string contains spaces, enclose it in quotation marks. A common convention is to use the circuit identifier as the path trace identifier. If you do not configure an identifier, the JUNOS software uses the system and interface names.
Usage Guidelines	See “Configure the SONET Path Trace Identifier” on page 86 or page 276.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	sonet-options on page 386

payload-scrambler

Syntax	(payload-scrambler no-payload-scrambler);
Hierarchy Level	[edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> sonet-options], [edit interfaces <i>interface-name</i> t3-options]
Description	<p>Enable or disable HDLC scrambling on an E3, a SONET, or a T3 interface. This type of scrambling provides better link stability. Both sides of a connection must either use or not use scrambling.</p> <p>Disable payload scrambling on an E3 interface if Digital Link compatibility mode is used.</p> <p>On a Channelized OC-12 interface, the SONET payload-scrambler statement is ignored. To configure scrambling on the DS-3 channels on the interface, you can include the t3-options payload-scrambler statement in the configuration for each DS-3 channel.</p>
Default	Payload scrambling is disabled on all E3 and T3 interfaces; it is enabled by default on E3/T3 over ATM interfaces and on SONET/SDH interfaces.
Usage Guidelines	See “Configure E3 and T3 HDLC Payload Scrambling” on page 75, “Configure SONET HDLC Payload Scrambling” on page 86 or page 276, “Configure E3 and T3 Parameters on ATM Interfaces” on page 186, and “Examples: Configure T3 Interfaces” on page 307.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

point-to-point

Syntax	point-to-point;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For all interfaces except aggregated Ethernet, Fast Ethernet, and Gigabit Ethernet, configure the interface unit as a point-to-point connection. This is the default connection type.
Default	If you omit this statement, the interface unit is configured as a point-to-point connection.
Usage Guidelines	See “Configure a Point-to-Point Connection” on page 103.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	multipoint on page 369

policer

Syntax	<pre>policer { input <i>policer-template-name</i>; output <i>policer-template-name</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet]
Description	Apply a policer to an interface. You can configure a different policer on each protocol family on an interface. You can configure one input policer only and one output policer only for each protocol family.
Options	<p>input <i>policer-template-name</i>—Name of one policer to evaluate when packets are received on the interface.</p> <p>output <i>policer-template-name</i>—Name of one policer to evaluate when packets are transmitted on the interface.</p>
Usage Guidelines	See “Apply Policers” on page 141.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	The <i>JUNOS Internet Software Configuration Guide: Policy Framework</i> .

ppp-options

Syntax	<pre>ppp-options { chap { access-profile <i>name</i>; local-name <i>name</i>; passive; } }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	On interfaces with PPP encapsulation, configure PPP-specific interface properties.
Options	The options are explained separately.
Usage Guidelines	See “Configure PPP Challenge Handshake Authentication Protocol” on page 47.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

preempt

Syntax	(preempt no-preempt);
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	When configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces, configure whether a backup router can preempt a master router: <p>preempt—Allow the master router to be preempted.</p> <p>no-preempt—Prohibit the preemption of the master router.</p>
Default	If you omit this statement, the backup router can preempt a master router.
Usage Guidelines	See “Configure a Backup Router to Preempt the Master Router” on page 157 or page 242.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

preferred

Syntax	preferred;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>]
Description	Configure this address to be the preferred address on the interface. If you configure more than one address on the same subnet, the preferred source address is chosen by default as the source address when you originate packets to destinations on the subnet.
Default	The lowest numbered address on the subnet is the preferred address.
Usage Guidelines	See “Configure the Interface Address” on page 129.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

primary

Syntax	primary;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>]
Description	Configure this address to be the primary address of the protocol on the interface. If the logical unit has more than one address, the primary address is used by default as the source address when packets originate from the interface and the destination does not indicate the subnet.
Default	For unicast traffic, the primary address is the lowest non-127 preferred address on the unit.
Usage Guidelines	See “Configure the Interface Address” on page 129.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

priority

Syntax	<code>priority priority;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	When configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces, configure a VRRP router's priority for becoming the master default router. The router with the highest priority within the group becomes the master.
Options	<p><i>priority</i>—Router's priority for being elected to be the master router in the VRRP group. A larger value indicates a higher priority for being elected.</p> <p>Range: 1 through 255</p> <p>Default: 100 (for backup routers)</p>
Usage Guidelines	See "Configure Basic VRRP Support" on page 155 or page 240.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

promiscuous-mode

Syntax	<code>promiscuous-mode;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> atm-options]
Description	<p>For ATM interfaces with atm-ccc-cell-relay encapsulation, map all incoming cells from either an interface port or a virtual path (VP) to a single LSP without restricting the VCI number. Promiscuous mode allows you to map traffic from all 65,535 VCIs to a single LSP, or from all 256 VPIs to a single LSP.</p> <p>For multiport PICs, all ports must be configured in either promiscuous mode or non-promiscuous mode. When in promiscuous mode, all ports must also be configured with atm-ccc-cell-relay encapsulation.</p> <p>When interfaces are configured in promiscuous mode, you cannot configure VCIs.</p>
Usage Guidelines	See "Configure ATM Physical Interface Properties" on page 60 or page 174.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	vpi on page 404

protect-circuit

Syntax	protect-circuit <i>group-name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Configure the protect router in an APS circuit pair. When the working interface fails, APS brings up the protection circuit and the traffic is moved to the protection circuit.
Options	<i>group-name</i> —Circuit's group name.
Usage Guidelines	See "Configure Basic APS Support" on page 88 or page 279.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	working-circuit on page 405

queue-length

Syntax	queue-length <i>number</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>address</i> shaping]
Description	For ATM encapsulation only, define the maximum queue length in the traffic-shaping profile. Each individual VC has its own independent shaping parameters.
Default	Buffer usage is unregulated.
Options	<i>number</i> —Maximum number of packets the queue can contain. Range: 1 through 16383 packets Default: 16383 packets
Usage Guidelines	See "Define the ATM Traffic-Shaping Profile" on page 116, page 135, or page 179.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

receive-bucket

Syntax	<pre>receive-bucket { overflow (tag discard); rate <i>percentage</i>; threshold <i>number</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	<p>Set parameters for the receive leaky bucket, which specifies what percentage of the interface's total capacity can be used to receive packets.</p> <p>For each DS-3 channel on a Channelized OC-12 interface, you can configure a unique receive bucket.</p>
Options	<p>In the overflow option, specify how to handle packets that exceed the threshold:</p> <p>tag—(receive-bucket only) Tag, count, and process received packets that exceed the threshold.</p> <p>discard—Discard received packets that exceed the threshold. No counting is done.</p> <p>rate <i>percentage</i>—Percentage of the interface line rate that is available to receive or transmit packets. Range: 0 through 100</p> <p>threshold <i>number</i>—Bucket threshold, which controls the burstiness of the leaky bucket mechanism. The larger the value, the more bursty the traffic, which means that over a very short amount of time, the interface can receive or transmit close to line rate, but the average over a longer time is at the configured bucket rate. Range: 0 through 16777215 bytes</p>
Usage Guidelines	See "Configure Receive and Transmit Leaky Bucket Properties" on page 53 or page 285.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	transmit-bucket on page 397

remote

Syntax remote {
 mac-address *address*;
}

Hierarchy Level [edit interfaces *interface-name* unit *logical-unit-number* family tcc]

Description For Layer 2.5 VPNs employing an Ethernet interface as the TCC router, configure the location of the remote router. Ethernet TCC is supported on interfaces that carry IPv4 traffic only. Ethernet TCC encapsulation is supported on one-port Gigabit Ethernet, two-port Gigabit Ethernet, four-port Gigabit Ethernet, and four-port Fast Ethernet PICs only. Ethernet TCC is not supported on the T-series platforms.

Options mac-address—Configure the MAC address of the remote site.

Usage Guidelines See “Configure Ethernet TCC and Extended VLAN TCC” on page 143 and “Example 2: Configure Extended VLAN TCC Encapsulation” on page 237.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also The *JUNOS Internet Software Configuration Guide: VPNs*.

request

Syntax request (protect | working);

Hierarchy Level [edit interfaces *interface-name* sonet-options aps]

Description Perform a manual switch between the protect and working circuits. This statement is honored only if there are no higher-priority reasons to switch.

Options protect—Request the circuit to become the protect circuit.
working—Request the circuit to become the working circuit.

Usage Guidelines See “Configure Switching between the Working and Protect Circuits” on page 90 or page 281.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also force on page 353

revert-time

Syntax	revert-time <i>seconds</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options aps]
Description	Configure APS revertive mode.
Default	APS operates in nonrevertive mode.
Options	<i>seconds</i> —Amount of time to wait after the working circuit has again become functional before making the working circuit active again. Range: 1 through 65,535 seconds Default: none (APS operates in nonrevertive mode)
Usage Guidelines	See “Configure Revertive Mode” on page 91 or page 281.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

rfc-2615

Syntax	rfc-2615;
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options]
Description	Include this statement to enable RFC 2615 features.
Default	Settings required by RFC 1619.
Usage Guidelines	See “Configure SONET RFC 2615 Support” on page 86 or page 277.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

routing-instance

Syntax	routing-instance { destination <i>routing-instance-name</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> tunnel]
Description	Specify the destination routing instance that points to the routing table containing the tunnel destination address.
Default	The default Internet routing table inet.0.
Usage Guidelines	See “Configure a VPN Loopback Tunnel for Route Table Lookup” on page 313.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

rpf-check

Syntax	rpf-check fail-filter <i>filter-name</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet6]
Description	Check whether traffic is arriving on an expected path.
Options	fail-filter—A filter to evaluate when packets are received on the interface. If the RPF check fails, this optional filter is evaluated.
Usage Guidelines	See “Configure Unicast Reverse Path Forwarding” on page 145.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

shaping

Syntax	shaping { (cbr <i>rate</i> vbr peak <i>rate</i> sustained <i>rate</i> burst <i>length</i>); queue-length <i>number</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>address</i>]
Description	For ATM encapsulation only, define the traffic-shaping profile.
Options	The statements are explained separately.
Usage Guidelines	See “Define the ATM Traffic-Shaping Profile” on page 116, page 135, or page 179.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

short-sequence

Syntax	short-sequence;
Hierarchy Level	[edit interfaces ml- <i>fpc/pic/port</i> unit <i>logical-unit-number</i>]
Description	For multilink interfaces only, set the length of the packet sequence identification number to 12 bits.
Default	If not included in the configuration, the length is set to 24 bits.
Usage Guidelines	See “Configure Sequence Format” on page 265.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

sonet-options

```

Syntax  sonet-options {
            aps {
                advertise-interval milliseconds;
                authentication-key key;
                force;
                hold-time milliseconds;
                lockout;
                neighbor address;
                paired-group group-name;
                protect-circuit group-name;
                request;
                revert-time seconds;
                working-circuit group-name;
            }
            bytes {
                e1-quiet value;
                f1 value;
                f2 value;
                s1 value;
                z3 value;
                z4 value;
            }
            fcs (32 | 16);
            loopback (local | remote);
            path-trace trace-string;
            (payload-scrambler | no-payload-scrambler);
            rfc-2615;
            (z0-increment | no-z0-increment);
        }

```

Hierarchy Level [edit interfaces *interface-name*]

Description Configure SONET-specific interface properties.

On SONET OC-48 interfaces that you configure for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc slot-number pic pic-number] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.

On a Channelized OC-12 interface, the bytes e1-quiet, bytes f1, bytes f2, bytes z3, and bytes z4 options are not supported. The fcs and payload-scrambler statements are also not supported; you must configure these for each DS-3 channel using the t3-options fcs and t3-options payload-scrambler statements. The aps and loopback statements are supported only on channel 0 and are ignored if included in the configurations for channels 1 through 11. You can configure loopbacks for each DS-3 channel with the t3-options loopback statement. The path-trace statement can be included in the configuration for each DS-3 channel, thereby configuring a unique path trace for each channel.

If you are running IS-IS over SONET interfaces, use PPP if you are running Cisco IOS Release 12.0 or later. If you need to run HDLC, configure an ISO family MTU of 4469 on the router.

Options The statements are explained separately.

Usage Guidelines See “Configure SONET/SDH Physical Interface Properties” on page 82 or page 272.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

See Also no-concatenate in the *JUNOS Internet Software Configuration Guide: Getting Started*

source

Syntax	source <i>source-address</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> tunnel <i>destination-address</i>]
Description	Specify the source address of the tunnel.
Default	If you do not specify a source address, the tunnel uses the unit's primary address as the source address of the tunnel.
Options	<i>source-address</i> —Address of the local side of the tunnel. This is the address that is placed in the outer IP header's source field.
Usage Guidelines	See "Configure Tunnel Interfaces" on page 311.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	multicasts-only on page 369, primary on page 379

source-address-filter

Syntax	source-address-filter { <i>mac-address</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i> aggregated-ether-options], [edit interfaces <i>interface-name</i> fastether-options], [edit interfaces <i>interface-name</i> gigether-options]
Description	For aggregated Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces only, specify the MAC addresses from which the interface can receive packets. For this statement to have any effect, you must include the source-filtering statement in the configuration to enable source address filtering.
Options	<i>mac-address</i> —MAC address filter. You can specify the MAC address as <i>nn:nn:nn:nn:nn:nn</i> or <i>nnnn.nnnn.nnnn</i> , where <i>n</i> is a decimal digit. To specify more than one address, include multiple <i>mac-address</i> options in the source-address-filter statement. If you enable VRRP on a Fast or Gigabit Ethernet interface, as described in "Configure VRRP" on page 238, and if you enable MAC source address filtering on the interface, you must include the virtual MAC address in the list of source MAC addresses that you specify in the source-address-filter statement. MAC addresses ranging from 00:00:5e:00:01:00 through 00:00:5e:00:01:ff are reserved for VRRP, as defined in RFC 2338. When you configure the VRRP group, the group number must be the decimal equivalent of the last hexadecimal byte of the virtual MAC address.
Usage Guidelines	See "Configure MAC Address Filtering" on page 79 or page 232.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	source-filtering on page 389

source-class-usage

Syntax	source-class-usage { (input output [input output]) }
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet accounting], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet6 accounting]
Description	Enable packet counters on an interface that count packets that arrive from specific prefixes on the provider core router and are destined for specific prefixes on the customer edge router.
Options	input—Configure at least one expected ingress point. output—Configure at least one expected egress point. input output—On a single interface, configure at least one expected ingress point and one expect egress point.
Usage Guidelines	See “Enable Source Class and Destination Class Usage” on page 147.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	accounting on page 321 and destination-class-usage on page 342

source-filtering

Syntax	(source-filtering no-source-filtering);
Hierarchy Level	[edit interfaces <i>interface-name</i> aggregated-ether-options], [edit interfaces <i>interface-name</i> fastether-options], [edit interfaces <i>interface-name</i> ggether-options]
Description	For aggregated Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces only, enable the filtering of MAC source addresses, which blocks all incoming packets to that interface. To allow the interface to receive packets from specific MAC addresses, include the source-address-filter statement. If the remote Ethernet card is changed, the interface will no longer be able to receive packets from the new card because it will have a different MAC address.
Default	Source address filtering is disabled.
Usage Guidelines	See “Configure MAC Address Filtering” on page 79 or page 232.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	source-address-filter on page 388

speed

Syntax	speed (10m 100m);
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure the interface's speed. This statement applies only to the management Ethernet interface (fxp0) and to the Fast Ethernet 12-port and 48-port PICs.
Options	You can specify the speed as either 10m or 100m (values in Mbps).
Usage Guidelines	See "Configure the Interface Speed" on page 49 or "Configure the Interface Speed" on page 234.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

start-end-flag

Syntax	start-end-flag (shared filler);
Hierarchy Level	[edit interfaces <i>interface-name</i> ds0-options], [edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
Description	For DS-0, E1, E3, T1, or T3 interfaces, configure the interface to share the transmission of start and end flags.
Options	filler—Wait two idle cycles between the start and end flags. shared—Share the transmission of the start and end flags.
Usage Guidelines	See "Configure the E3 and T3 Start and End Flags" on page 75, "Configure the Start End Flags" on page 221, or "Configure the Start End Flags" on page 307; "Configure the E1 and T1 Start and End Flags" on page 69, "Configure E1 Start End Flags" on page 214, or "Configure T1 Start End Flags" on page 300.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

syslog

Syntax	(syslog no-syslog);
Hierarchy Level	[edit interfaces <i>mo-fpc/pic/port</i> multiservice-options]
Description	System logging is enabled by default. The system log information of the passive monitoring PIC is passed to the kernel for logging in the /var/log directory.
	syslog—Enable PIC system logging.
	no-syslog—Disable PIC system logging.
Usage Guidelines	See “Configure Multiservice Physical Interface Properties” on page 81.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

t1-options

Syntax	t1-options { bert-algorithm <i>algorithm</i> ; bert-error-rate <i>rate</i> ; bert-period <i>seconds</i> ; buildout (0-133 133-266 266-399 399-532 532-655); byte-encoding (nx64 nx56); fcs (32 16); framing (sf esf); idle-cycle-flag (flags ones); invert-data; line-encoding (ami b8zs); loopback (local remote); start-end-flag (shared filler); timeslots <i>slot-number</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	Configure T1-specific physical interface properties.
Options	The statements are explained separately.
Usage Guidelines	See “Configure E1 and T1 Physical Interface Properties” on page 64 or “Configure T1 Interfaces” on page 295.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

t3-options

Syntax	<pre>t3-options { bert-algorithm <i>algorithm</i>; bert-error-rate <i>rate</i>; bert-period <i>seconds</i>; (cbit-parity no-cbit-parity); compatibility-mode (digital-link kentrox larscom) <subrate <i>value</i>>; fcs (32 16); (feac-loop-respond no-feac-loop-respond); idle-cycle-flag <i>value</i>; (long-buildout no-long-buildout); loopback (local remote); start-end-flag <i>value</i>; }</pre>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	<p>Configure T3-specific physical interface properties, including the properties of DS-3 channels on a Channelized OC-12 interface. The long-buildout statement is not supported for DS-3 channels on a Channelized OC-12 interface.</p> <p>On T3 interfaces, the default encapsulation is PPP.</p>
Options	The statements are explained separately.
Usage Guidelines	See “Configure E3 and T3 Physical Interface Properties” on page 70 or “Configure T3 Interfaces” on page 301.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

timeslots

Syntax	timeslots <i>slot-number</i> ;
Hierarchy Level	<p>[edit interfaces <i>interface-name</i> e1-options],</p> <p>[edit interfaces <i>interface-name</i> t1-options]</p>
Description	For E1 or T1 interfaces, allocate the specific timeslots by number.
Options	<p><i>slot-number</i>—Actual timeslot numbers allocated:</p> <p>Range: 1 through 24 for T1 interfaces, and 1 through 32 for E1 interfaces</p>
Usage Guidelines	See “Configure the E1 and T1 Timeslots” on page 69, “Configure E1 Timeslots” on page 215, or “Configure T1 Timeslots” on page 300.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

tracoptions

tracoptions (individual interfaces)

Syntax tracoptions {
 flag *flag* <disable>;
}

Hierarchy Level [edit interfaces *interface-name*]

Description Define tracing operations for individual interfaces.

To specify more than one tracing operation, include multiple flag statements.

The interfaces tracoptions statement does not support a trace file. The logging is done by the kernel, so the tracing information is placed in the system syslog file in the directory /var/log.

Default If you do not include this statement, no interface-specific tracing operations are performed.

Options disable—(Optional) Disable the tracing operation. You can use this option to disable a single operation when you have defined a broad group of tracing operations, such as all.

flag—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. The following are the interface-specific tracing options.

all—All interface tracing operations

event—Interface events

ipc—Interface IPC messages

media—Interface media changes

Usage Guidelines See “Trace Operations of the Interface Process” on page 172.

Required Privilege Level interface and trace—To view this statement in the configuration.
interface-control and trace-control—To add this statement to the configuration.

tracoptions (interface process)

Syntax tracoptions {
 file *filename* <size *size*> <files *number*>;
}

Hierarchy Level [edit interfaces]

Description Define tracing operations for the interface process (dcd).

Default If you do not include this statement, no interface-specific tracing operations are performed.

Options *filename*—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory /var/log. By default, interface process tracing output is placed in the file dcd.

files *number*—(Optional) Maximum number of trace files. When a trace file named *trace-file* reaches its maximum size, it is renamed *trace-file.0*, then *trace-file.1*, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you also must specify a maximum file size with the size option.

Range: 2 through 1,000

Default: 3 files

size *size*—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named *trace-file* reaches this size, it is renamed *trace-file.0*. When the *trace-file* again reaches its maximum size, *trace-file.0* is renamed *trace-file.1* and *trace-file* is renamed *trace-file.0*. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum file size, you also must specify a maximum number of trace files with the files option.

Syntax: *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB

Range: 10 KB through the maximum file size supported on your router

Default: 1 MB

Usage Guidelines See “Trace Operations of the Interface Process” on page 172.

Required Privilege Level interface and trace—To view this statement in the configuration.
interface-control and trace-control—To add this statement to the configuration.

traceoptions (VRRP)

```
Syntax  traceoptions {
        file {
            filename filename;
            files number;
            size size;
            (world-readable | no-world-readable);
        }
        flag flag;
    }
```

Hierarchy Level [edit protocols vrrp]

Description Define tracing operations for VRRP.

To specify more than one tracing operation, include multiple flag statements.

By default, VRRP logs the error, dcd configuration, and routing socket events in a file in the directory /var/log.

Default If you do not include this statement, no VRRP-specific tracing operations are performed.

Options filename *filename*—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory /var/log. By default, interface process tracing output is placed in the file vrrpd.

files *number*—(Optional) Maximum number of trace files. When a trace file named *trace-file* reaches its maximum size, it is renamed *trace-file.0*, then *trace-file.1*, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you also must specify a maximum file size with the size option.

Range: 2 through 1,000

Default: 3 files

flag *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. These are the VRRP-specific tracing options.

all—All VRRP tracing operations

database—Database changes

general—General events

interfaces—Interface changes

normal—Normal events

packets—Packets sent and received

state—State transitions

timer—Timer events

size *size*—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named *trace-file* reaches this size, it is renamed *trace-file.0*. When the *trace-file* again reaches its maximum size, *trace-file.0* is renamed *trace-file.1* and *trace-file* is renamed *trace-file.0*. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum file size, you also must specify a maximum number of trace files with the files option.

Syntax: *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB

Range: 10 KB through the maximum file size supported on your router

Default: 1 MB

world-readable | no-world-readable—Specifies whether any reader can read the log file.

Usage Guidelines See “Trace VRRP Operations” on page 159 or page 243.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

track

Syntax	track { interface <i>interface-name</i> priority-cost <i>cost</i> ; }
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	Enable interface tracking for a VRRP group.
Options	interface <i>interface-name</i> —Interface to be tracked for this VRRP group Range: Up to 10 interfaces can be tracked priority-cost <i>cost</i> —The value subtracted from the configured VRRP priority when the tracked interface is down, forcing a new master router election. The sum of all the costs for all interfaces or routes that are tracked must be less than or equal to the configured priority of the VRRP group. Range: 1 through 254
Usage Guidelines	See “Configure an Interface to Be Tracked” on page 158 or page 243.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

transmit-bucket

Syntax transmit-bucket {
 overflow (discard);
 rate *percentage*;
 threshold *number*;
 }

Hierarchy Level [edit interfaces *interface-name*]

Description Set parameters for the transmit leaky bucket, which specifies what percentage of the interface's total capacity can be used to transmit packets.

For each DS-3 channel in a Channelized OC-12 interface, you can configure a unique transmit bucket.

Options In the overflow option, specify how to handle packets that exceed the threshold:

discard—Discard received packets that exceed the threshold. No counting is done.

rate *percentage*—Percentage of the interface line rate that is available to receive or transmit packets.

Range: 0 through 100

threshold *number*—Bucket threshold, which controls the burstiness of the leaky bucket mechanism. The larger the value, the more bursty the traffic, which means that over a very short amount of time, the interface can receive or transmit close to line rate, but the average over a longer time is at the configured bucket rate.

Range: 0 through 16777215 bytes

Usage Guidelines See “Configure Receive and Transmit Leaky Bucket Properties” on page 53 or page 285.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

See Also receive-bucket on page 382

tll

Syntax tll *value*;

Hierarchy Level [edit interfaces *interface-name* unit *number* tunnel]

Description Set the time-to-live value bit in the header of the outer IP packet.

Options *value*—Time-to-live value.

Range: 0 through 255

Default: 64

Usage Guidelines See “Configure Tunnel Interfaces” on page 311.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

tunnel

Syntax	<pre> tunnel { source <i>source-address</i>; destination <i>destination-address</i>; routing-instance { destination <i>routing-instance-name</i>; } ttl <i>number</i>; } </pre>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	Configure a tunnel. You can use the tunnel for unicast and multicast traffic or just for multicast traffic. You can also use tunnels for encrypted traffic or VPNs.
Options	The statements are explained separately.
Usage Guidelines	See “Configure Tunnel Interfaces” on page 119 or page 311; “Configure Encryption Interfaces” on page 223.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	multicasts-only on page 369 or the <i>JUNOS Internet Softw are Configur ation Guide: VPNs</i> .

unit

```

Syntax  unit logical-unit-number {
    disable;
    accounting-profile name;
    allow_any_vci;
    description text;
    dlc dlci-identifier;
    drop-timeout milliseconds;
    encapsulation type;
    fragment-threshold bytes;
    inverse-arp;
    mrru bytes;
    multicast-dlci dlci-identifier;
    multicast-vci vpi-identifier.vci-identifier;
    multipoint;
    no-traps;
    oam-liveness {
        up-count cells;
        down-count cells;
    }
    oam-period (disable | seconds);
    point-to-point;
    shaping {
        (cbr rate | vbr peak rate sustained rate burst length);
        queue-length number;
    }
    short-sequence;
    tunnel {
        source source-address;
        destination destination-address;
        routing-instance {
            destination routing-instance-name;
        }
        ttl number;
    }
    vci vpi-identifier.vci-identifier(
    )
    vlan-id number;
    family family {
        bundle ml-fpc/pic/port;
        destination-class-usage;
        filter {
            input filter-name;
            output filter-name;
            group filter-group-number;
        }
        ipsec-sa sa-name;
        mtu bytes;
        multicasts-only;
        no-redirects;
        primary;
    }
}

```

```

address address {
    arp ip-address (mac | multicast-mac) mac-address <publish>;
    destination destination-address;
    eui-64;
    broadcast address;
    multipoint-destination destination-address dcli dcli-identifier;
    multipoint-destination destination-address {
        inverse-arp;
        oam-liveness {
            up-count cells;
            down-count cells;
        }
        oam-period seconds;
        shaping {
            (cbr rate | vbr peak rate sustained rate burst length);
            queue-length number;
        }
        vci vpi-identifier.vci-identifier;
    }
    primary;
    preferred;
    vrrp-group group-number {
        virtual-address [addresses];
        priority number;
        (accept-data | no-accept-data);
        advertise-interval seconds;
        authentication-type authentication;
        authentication-key key;
        (preempt | no-preempt);
        track {
            interface interface-name priority-cost cost;
        }
    }
}
}
}

```

Hierarchy Level [edit interfaces *interface-name*]

Description Configure a logical interface on the physical device. You must configure a logical interface to be able to use the physical device.

Options *logical-unit-number*—Number of the logical unit.
Range: 0 through 16384

The remaining statements are explained separately.

Usage Guidelines See “Configure Logical Interface Properties” on page 99.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

vbr

Syntax	vbr peak <i>rate</i> sustained <i>rate</i> burst <i>length</i> ;
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>destination-address</i> shaping]
Description	For ATM encapsulation only, define the variable bandwidth utilization in the traffic-shaping profile. Each individual VC has its own independent shaping parameters. When you configure the variable bandwidth utilization, you must specify all three options (burst, peak, and sustained). You can specify <i>rate</i> in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). You can also specify <i>rate</i> in cells per second by entering a decimal number followed by the abbreviation c; values expressed in cells per second are converted to bits per second using the formula 1 cps = 384 bps.
Default	Unspecified bit rate (UBR); that is, bandwidth utilization is unlimited.
Options	burst <i>length</i> —Burst length, in cells. If you set the length to 1, the peak traffic rate is used. Range: 1 through 255 cells peak <i>rate</i> —Peak rate, in bps or cps. Range: 33 kbps through 135.6 Mbps (ATM OC-3); 33 kbps through 276 Mbps (ATM OC-12) sustained <i>rate</i> —Sustained rate, in bps or cps. Range: 33 kbps through 135.6 Mbps (ATM OC-3); 33 kbps through 276 Mbps (ATM OC-12)
Usage Guidelines	See “Define the ATM Traffic-Shaping Profile” on page 116, page 135, or page 179.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	cbr on page 337

vci

Syntax	<code>vci vpi-identifier.vci-identifier;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> multipoint-destination <i>address</i>]
Description	For ATM point-to-point logical interfaces only, configure the virtual circuit identifier (VCI) and virtual path identifier (VPI). To configure a VPI for a point-to-multipoint interface, specify the VPI in the multipoint-destination statement.
Options	<i>vci-identifier</i> —ATM virtual circuit identifier. Unless you configure the interface to use promiscuous mode, this value cannot exceed the largest numbered VC configured for the interface with the maximum-vcs option of the vpi statement. Range: 0 through 4089 or 0 through 65,535 with promiscuous mode <i>vpi-identifier</i> —ATM virtual path identifier. Range: 0 through 255 Default: 0
Usage Guidelines	See “Configure a Point-to-Point ATM Connection” on page 122 or page 178.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	multipoint-destination on page 370, promiscuous-mode on page 380, vpi on page 404

virtual-address

Syntax	<code>virtual-address [addresses];</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i>]
Description	When you are configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces only, configure the addresses of the virtual routers in a VRRP group.
Options	<i>addresses</i> —Addresses of one or more virtual routers. Do not include a prefix length. If the address is the same as the interface’s physical address, the interface becomes the master virtual router for the group.
Usage Guidelines	See “Configure Basic VRRP Support” on page 155 or page 240.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

vlan-id

Syntax	<code>vlan-id number;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i>]
Description	For Fast Ethernet and Gigabit Ethernet interfaces only, binds a 802.1Q VLAN tag ID to a logical interface.
Options	<p><i>number</i>—A valid VLAN identifier.</p> <p>Range: For 4-port, 8-port, and 12-port Fast Ethernet PICs and management and internal Ethernet interfaces, 0 through 1023. For 48-port Fast Ethernet and Gigabit Ethernet PICs, 0 through 4094.</p>
Usage Guidelines	See “Configure 802.1Q VLAN IDs” on page 122 or page 234.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

vlan-tagging

Syntax	<code>vlan-tagging;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i>]
Description	For Fast Ethernet and Gigabit Ethernet interfaces only, enables the reception and transmission of 802.1Q VLAN-tagged frames on the interface.
Usage Guidelines	See “Configure 802.1Q VLAN Tagging” on page 98 and “Configure 802.1Q VLANs” on page 234.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

vpi

Syntax	<code>vpi vpi-identifier maximum-vcs maximum-vcs;</code>
Hierarchy Level	[edit interfaces <i>interface-name</i> atm-options]
Description	<p>For ATM interfaces, configure the maximum number of virtual circuits (VCs) allowed on a virtual path (VP). When configuring ATM interfaces on the router, you must include this statement.</p> <p>For a configured VPI, valid VCI numbers are in the range 0 through (<i>maximum-vcs value</i> – 1). VCI numbers 0 through 31 are reserved by the ATM Forum. It is recommended that you use a VCI number higher than 31 when connecting to an ATM switch.</p>
Options	<p><i>maximum-vcs</i>—Maximum number of VCs on the VP. For most interfaces, you can define a maximum of 4090 VCs per interface. The highest numbered VC value you can configure is 4089. For ATM OC-3 interfaces, you can define a maximum of 8186 VCs per interface. For ATM OC-12 interfaces, you can define a maximum of 16,378 VCs per interface. Promiscuous mode removes these limits. Range: 0 through 4089 or 0 through 65,535 with promiscuous mode</p> <p><i>vpi-identifier</i>—ATM virtual path identifier. This is one of the VPIs that you define in the vci statement. Range: 0 through 255</p>
Usage Guidelines	See “Configure ATM Physical Interface Properties” on page 60 or page 174.
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
See Also	multipoint-destination on page 370, promiscuous-mode on page 380, vci on page 402

vrrp-group

Syntax `vrrp-group group-number {
 virtual-address [addresses];
 priority number;
 (accept-data | no-accept-data);
 advertise-interval seconds;
 authentication-type authentication;
 authentication-key key;
 (preempt | no-preempt);
 track {
 interface interface-name priority-cost cost;
 }
}`

Hierarchy Level [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address*]

Description For Fast Ethernet and Gigabit Ethernet interfaces only, configure a VRRP group.

Options *group-number*—VRRP group identifier. If you enable MAC source address filtering on the interface, as described in “Configure MAC Address Filtering” on page 79, you must include the virtual MAC address in the list of source MAC addresses that you specify in the source-address-filter statement. MAC addresses ranging from 00:00:5e:00:01:00 through 00:00:5e:00:01:ff are reserved for VRRP, as defined in RFC 2338. The VRRP group number must be the decimal equivalent of the last hexadecimal byte of the virtual MAC address.
Range: 0 through 255

The statements are explained separately.

Usage Guidelines See “Configure VRRP” on page 154 or page 238.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

working-circuit

Syntax `working-circuit group-name;`

Hierarchy Level [edit interfaces *interface-name* sonet-options aps]

Description Configure the working router in an APS circuit pair.

Options *group-name*—Circuit’s group name.

Usage Guidelines See “Configure Basic APS Support” on page 88 or page 279.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

See Also protect-circuit on page 381

z0-increment

Syntax	(z0-increment no-z0-increment);
Hierarchy Level	[edit interfaces <i>interface-name</i> sonet-options]
Description	Configure an incrementing STM ID rather than a static one.
Usage Guidelines	See “Configure SONET z0-increment Option” on page 84 or page 274.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
See Also	sonet-options on page 386

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